REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

Although the Examiner is obviously aware of related copending commonly assigned USSN 10/556,459, the Examiner's attention is drawn to the fact that this closely related case is being examined in Art Unit 2624 by Examiner Michelle Entezari. An Office Action was issued on 04/14/2008 and a copy of same is attached for the Examiner's convenience.

In response to the provisional rejection of claims 1 and 6 based on alleged obviousness-type double-patenting vis-à-vis certain claims of related copending application 10/556,459, a Terminal Disclaimer is submitted herewith so as to obviate these grounds of rejection.

The attached Terminal Disclaimer should also obviate the provisional rejection of dependent claims 2-5 and 7-8 based on the same alleged non-statutory obviousness-type double-patenting basis.

In response to the rejection of claims 4-5 under 35 U.S.C. §101, claim 4 has been amended as suggested by the Examiner and claim 5 has been cancelled. Accordingly, this ground of rejection is also now overcome.

The rejection of claims 1 and 4-6 under 35 U.S.C. §102 as allegedly anticipated by Fujiwara et al. is respectfully traversed.

Fujiwara et al. is concerned with achieving three-dimensional facial caricature using a reduced number of feature points. As in earlier two-dimensional caricature techniques described by Fujiwara et al. at §2 bridging pages 490-491, differences between an input image and an "average" reference face are detected so as to recognize where and how much personal characteristic features in the face should be exaggerated for generating the caricature.

Apparently, the degree of exaggeration ("value of deformation") can be varied (e.g., see §4.2 on page 494). However the undersigned has found no teaching or suggestion anywhere in Fujiwara that the overall size of the output caricature image is even considered by Fujiwara et al.

Presumably the output caricatured image could be scaled proportionally by the usual "zooming" features well known in image processing. However, there is no recognition anywhere in Fujiwara et al. that the "value of deformation" or any similar caricature level value should be or even could be varied in dependence upon the intended overall size of the output caricatured image.

For example, the Fujiwara Figures show comparison between similarly sized output caricatures (or input images for that matter). The smaller sized images shown at Figure 9 appear to be scaled down by traditional zooming technique so as to fit on the page. However, there is no difference in caricature level value associated with these smaller scale images of Figure 9 and the larger scale images of other Figures. Indeed, Figure 9 only depicts non-caricatured "average" faces defined by eight or sixteen persons respectively.

The input and output images of Figure 11 are all similarly sized. The only apparent distinction between the two images shown at Figure 12 is the automatic extraction of input points (Figure 12A) verses a manual input of 189 points (Figure 12B). Figures 14 and 15 are similarly sized.

The Examiner alleges that Fujiwara anticipates determining a caricature level value in dependence upon an intend size of the caricature image to be generated. For this alleged teaching, the Examiner relies upon Fujiwara et al. at page 491, §2.2, paragraph 3. However, this paragraph actually deals only with the prior art two dimensional caricature process -- and, in any

event, it simply explains that facial caricature is generated from the input face by comparing it with the average face. A formula is presented so as to thereby identify "individuality features" which can be expressed by a vector. While the parameter b does indicate the "deformation rate", there is absolutely nothing here to indicate that the deformation rate parameter b should be selected in dependence upon the intended size of the output caricatured image to be generated. Indeed, the entirety of the Fujiwara teaching is to the contrary. The deformation rate parameter b has nothing to do with the size of an output caricatured image.

The Examiner also relies on paragraph 4 but this paragraph merely explains how the input facial image is captured by a person sitting in front of a camera.

The Examiner also relies upon paragraph 5 of §2.2. However, this paragraph merely explains that the input face data is "normalized" so as to be comparable in size to the reference "average" face. Clearly if individuality differences are to be determined by comparing the input image to a reference "average" facial image, then both images must be similarly sized. However, this has nothing to do about any choice for the deformation rate parameter b -- nor does it have anything to do with the size of the output caricatured image ultimately to be produced.

Finally, the Examiner relies upon paragraph 6 of §2.2. However, this paragraph merely concludes that the fundamental principle of three dimensional caricaturing is the same as for two dimensional facial caricaturing. While formula (2) does again include the same deformation rate parameter b, there is once again nothing whatsoever to tie a choice for the deformation rate parameter (b) to any size parameter of any kind -- let alone to the intended size of the caricatured image to be generated.

The Examiner also alleges that Fujiwara teaches that the amount of caricaturing should be directly dependent upon the size (presumably of the output image) and that Fujiwara teaches generating the caricatured image using the caricature level value thus determined. For this alleged teaching, the Examiner relies upon Fujiwara, page 494, §4. However, §4 simply deals with the methodology of three dimensional facial caricaturing -- and only mentions the value of the deformation rate (b) once when discussing experimental results. It will be observed that for all of these experimental results, the deformation rate value was chosen to be 100%. That is, while Fujiwara does contemplate possibly different values of deformation rate parameter values (b), there is no teaching that this value should be chosen in any way dependent upon the intended size of the output caricatured image.

Given such fundamental deficiencies of Fujiwara et al. with respect to the above discussed features of independent claims 1 and 6, it is not believed necessary at this time to discuss additional deficiencies of this reference with respect to the additional recitations of either these independent claims or the rejected dependent claims. Suffice it to note that, as a matter of law, it is impossible for any reference to anticipate a given claim unless it teaches each and every feature of that claim.

Clearly Fujiwara does not in any way teach determining the caricature level value as a generally inverse function of the intended size of the caricatured image to be generated (claims 2 and 7). Nor does Fujiwara et al. in any way teach that such an inverse function should be applied over at least a sub-range of the possible range of intended sizes of the caricatured image to be generated (claims 3 and 8). Indeed, so far as the undersigned can ascertain, Fujiwara et al. is

totally silent about the intended size of an output caricatured image to be generated -- let alone tying any caricaturing parameter to such intended output image size.

Indeed, this is quite possibly why the Examiner has failed to reject claims 2-3 and 7-8 based on Fujiwara et al.

The rejection of claims 1-8 under 35 U.S.C. §102 as allegedly anticipated by Massarsky '628 is also respectfully traversed.

While Massarsky is directed to method and apparatus for generating a caricatured image, it also totally fails to in anyway teach or suggest choosing a caricature level value in dependence upon the intended size of an output caricatured image to be generated.

The Examiner relies upon Massarsky at 6:20-7:4 merely because Massarsky therein once mentions (6:67) that the described methodology may be further or alternatively configured to rotate, scale or translate the captured image into an altered image. To the extent that Massarsky teaches possibly adjusting the scale of the captured input image (e.g., presumably prior to creating a caricature thereof), this clearly in no way teaches any logical connection between the intended size of the output caricatured image to be generated and a caricature level value chosen in dependence thereon.

As with Fujiwara et al., Massarsky is silent with respect to the intended size of an output caricatured image to be generated. Even if such output image is assumed to be possibly "scaled" (i.e., zoomed in or out) using conventional image processing techniques, this still does not teach or suggest determining a caricature level value in dependence upon the intended size of the output caricatured image to be generated.

With respect to claims 2 and 7, the Examiner relies upon Massarsky at 6:40-67 (specifically 6:40-55). However, this section of Massarsky is merely teaching a portion of the caricaturing process where a warping effect may be accomplished by increasing or decreasing the distance between two or more predetermined control points (in effect re-assigning or moving predetermined control points to a new location within the image space). It will be noted that the therein referenced images at Figures 4 and 5 are of the identical image size (albeit Figure 5 includes "warped" image features within that same sized image space).

While it is true that Massarsky does use the word "inverse" (6:52), this is only with respect to the preferred warping methodology wherein distortion of some kind may apparently be described by "an inverse transform". However, the "inverse transform" used by Massarsky to create a warping effect, has no apparent relationship to the intended size of the caricatured image to be generated. That is, Massarsky totally fails to teach that a caricature level value should be determined as a generally inverse function of the intended size of the output caricatured image to be generated.

With respect to claims 3 and 8, the Examiner relies upon Massarsky at 5:38-67 for an alleged teaching that the generally inverse function recited in applicant's claim 2 is applied over at least a sub-range of possible range of intended sizes of the output caricatured image to be generated. However, Massarsky at 5:38-67 has nothing whatever to do with any inverse relationship of any kind -- let alone any inverse relationship of any caricarturing parameter with respect to the intended size of an output caricatured image to be generated. Instead, this passage simply describes the flow chart of Figure 3 wherein a captured image is processed so as to establish distances between different sets of control points -- at least some of which are then

altered. While this is presumably part of the caricaturing process taught by Massarsky, it has nothing to do with selecting any degree of caricature as an inverse function of the intended size of the output caricatured image to be generated. Nor does it have anything to do with applying such an inverse functionality over at least a sub-range of a possible range of intended sizes of the output caricatured image to be generated.

Neither Fujiwara et al. nor Massarsky could possibly anticipate (nor even render "obvious") applicant's claimed invention(s).

Accordingly, this entire application is now believed to be in allowable condition and a formal Notice to that effect is respectfully solicited.

Respectfully submitted,

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ABSTRACT OF THE DISCLOSURE

~~The present invention applies prior art findings with regards to increased recognisance~~Increased recognizance of caricatured images ~~by providing a method and system which provide~~ is provided for the level of caricaturing to be applied to an image to be set in dependence on the intended size of the caricature image. Preferably, the caricature level is set as a generally inverse function of the image size, such that the smaller the image the greater the level of the caricaturing that is applied. In such a case increased ~~recognisance~~recognizance of subjects represented in smaller images may result.